



US009480327B2

(12) **United States Patent**
Moreau et al.

(10) **Patent No.:** **US 9,480,327 B2**
(45) **Date of Patent:** **Nov. 1, 2016**

(54) **DROP-PREVENTION APPARATUS FOR A ROLLED PRODUCT**

(71) Applicant: **Ty-Flot, Inc.**, Manchester, NH (US)

(72) Inventors: **Darrell A. Moreau**, Manchester, NH (US); **Andre W. Moreau**, Bedford, NH (US)

(73) Assignee: **Ty-Flot, Inc.**, Manchester, NJ (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 12 days.

(21) Appl. No.: **14/792,954**

(22) Filed: **Jul. 7, 2015**

(65) **Prior Publication Data**

US 2016/0095421 A1 Apr. 7, 2016

Related U.S. Application Data

(63) Continuation-in-part of application No. 14/507,360, filed on Oct. 6, 2014.

(51) **Int. Cl.**

A45F 5/00 (2006.01)

F16B 45/00 (2006.01)

A45F 5/02 (2006.01)

F16M 13/02 (2006.01)

(52) **U.S. Cl.**

CPC **A45F 5/00** (2013.01); **A45F 5/021** (2013.01); **F16B 45/00** (2013.01); **A45F 2005/006** (2013.01)

(58) **Field of Classification Search**

CPC **A45F 5/021**; **A45F 5/00**; **F16B 45/00**; **B66C 1/12**; **Y10T 24/318**

USPC **24/328**, **3.13**; **294/74**; **248/317**, **323**, **248/327**, **340**; **482/126**; **224/904**, **220**, **255**, **224/250**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

758,959 A * 5/1904 Crosby **B66C 1/12**
24/134 R

1,490,066 A * 4/1924 Carr **A45F 3/14**
182/3

1,686,288 A * 10/1928 Meals **B66C 1/12**
24/129 A

2,291,089 A * 7/1942 Okun **A44B 15/00**
24/115 H

2,558,553 A * 6/1951 Hansen **B66C 1/12**
156/185

2,643,638 A * 6/1953 Villmer **A01K 15/003**
119/805

2,819,923 A * 1/1958 Doyle **A01M 31/00**
294/150

2,947,504 A * 8/1960 Ruhlman **H01B 17/22**
174/173

3,046,045 A * 7/1962 Campbell **B66C 1/12**
182/1

3,079,192 A * 2/1963 Otley **B66C 1/12**
24/129 B

3,294,299 A * 12/1966 Brennan **A44C 19/00**
224/220

3,310,333 A * 3/1967 Hutson **B64D 1/00**
294/74

3,319,990 A * 5/1967 Beal **B66C 1/12**
24/115 R

(Continued)

Primary Examiner — Robert J Sandy

Assistant Examiner — Jason W San

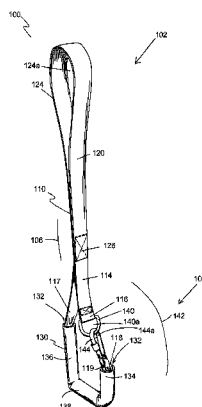
(74) *Attorney, Agent, or Firm* — Mesmer & Deleault, PLLC

(57)

ABSTRACT

A lanyard apparatus for a rolled product includes a flexible strap having first and second strap ends and a body portion between the strap ends. The first strap end is secured to the body portion at an attachment point to define a first loop. A hollow tubular member is installed over the body portion between a second strap end portion and the attachment point. The second strap end portion extends from the tubular member and has an opening sized to permit passage of the first loop therethrough to thereby define an openable second loop. The tubular member has a first arm, a second arm spaced apart from the first arm, a transverse part extending transversely between and connecting a lower first arm portion and a lower second arm portion, and an upper transverse portion extending transversely from an upper second arm portion and aligned with the transverse part.

11 Claims, 9 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,338,046	A *	8/1967	Baur	F16G 11/00 294/74	6,381,939	B1 *	5/2002	Brown	B66C 1/12 24/122.6
3,592,502	A *	7/1971	Bolliger	B66C 1/18 294/152	6,418,594	B1 *	7/2002	Miller	A61G 7/0536 24/298
3,707,021	A *	12/1972	Norrman	B66C 1/12 24/16 R	6,447,037	B1 *	9/2002	Crouch	B65D 33/14 294/149
3,718,945	A *	3/1973	Brindejonc de Treglode	B29C 47/027 24/370	6,450,929	B1 *	9/2002	Markham	A63B 21/0552 482/121
3,752,127	A *	8/1973	Baker	A01K 27/003 119/797	6,523,227	B2 *	2/2003	Goodall	A45F 5/00 2/45
4,015,762	A *	4/1977	Mendillo	A63C 11/025 280/814	6,536,639	B1 *	3/2003	Frank	A45F 3/14 224/250
4,022,507	A *	5/1977	Marino	B66C 1/18 294/150	6,672,997	B1 *	1/2004	Winkler	A63B 21/0552 482/121
4,043,581	A *	8/1977	St. Germain	D07B 1/185 294/74	6,708,650	B1 *	3/2004	Yates	A01K 27/002 119/712
4,239,271	A *	12/1980	Beasley	B66C 1/18 294/74	6,776,318	B2 *	8/2004	Washington	A45F 5/00 224/250
4,649,666	A *	3/1987	Ness	A01G 17/12 47/43	6,824,346	B2 *	11/2004	Coblentz	B66C 1/18 294/150
4,733,862	A *	3/1988	Miller	A63B 21/0552 24/129 R	6,921,354	B1 *	7/2005	Shifferaw	A63B 21/068 482/126
4,753,086	A *	6/1988	Schmidt	A44C 5/0084 63/3	7,000,809	B1 *	2/2006	Stroud	A45F 5/02 224/250
4,856,836	A *	8/1989	Delphin	B66C 1/18 294/74	7,103,943	B2 *	9/2006	Lambert	A01K 27/00 119/792
4,982,522	A *	1/1991	Norton	F41C 33/00 224/220	7,204,468	B2 *	4/2007	Kintzele	A47D 15/00 248/102
5,136,759	A *	8/1992	Armour, II	A44B 18/00 24/16 R	7,240,475	B2 *	7/2007	Smeets	B66C 1/12 57/201
5,150,504	A *	9/1992	Cohen	A45F 5/02 24/3.13	7,399,018	B1 *	7/2008	Khachaturian	B66C 1/12 294/74
5,230,451	A *	7/1993	Onozawa	A45F 3/14 2/300	7,422,255	B2 *	9/2008	Hess	A63B 29/02 24/17 B
5,265,834	A *	11/1993	Daniels	A61J 9/06 24/302	D593,167	S *	5/2009	Vigilia	D21/662
5,415,449	A *	5/1995	Kentner, Sr.	B66C 1/12 294/74	7,998,034	B1 *	8/2011	Cobo	A63B 69/0028 482/126
5,462,019	A *	10/1995	Hong-Rong	A01K 27/005 119/795	8,016,335	B2 *	9/2011	McKay	A62B 35/0006 294/141
5,474,274	A *	12/1995	Bernosky	F16L 3/14 248/317	8,061,750	B1 *	11/2011	Hamilton	A45C 13/30 294/149
5,514,059	A *	5/1996	Romney	A63B 21/0004 482/121	8,132,361	B1 *	3/2012	Poyas	A01G 9/12 248/218.4
5,575,042	A *	11/1996	Kalbach	G02C 3/003 24/3.13	D683,085	S *	5/2013	Parker	D30/152
5,581,853	A *	12/1996	Miller	A61F 5/3761 24/302	8,458,864	B1 *	6/2013	Patton	A61F 5/3792 24/16 R
5,600,873	A *	2/1997	May	G02C 3/003 200/330	8,720,462	B2 *	5/2014	Vieira	B25G 1/02 135/118
5,603,545	A *	2/1997	Benson	A45F 3/14 224/250	8,727,406	B2 *	5/2014	Dohse	B66C 1/12 294/74
5,727,833	A *	3/1998	Coe	B66C 1/12 294/74	8,776,323	B2 *	7/2014	McLennan	B60P 7/0823 24/170
5,740,591	A *	4/1998	Hopkins	A44B 11/12 24/164	8,840,532	B2 *	9/2014	Hetrick	A44B 11/2557 482/126
5,813,954	A *	9/1998	Wilkinson	A63B 21/0004 482/124	8,961,377	B1 *	2/2015	Simplis	A63B 21/0552 482/124
5,950,284	A *	9/1999	Persson	B60P 7/0823 24/115 K	D727,139	S *	4/2015	Johnston	D22/147
6,036,066	A *	3/2000	Giacona, III	A45C 13/30 224/148.6	8,998,052	B1 *	4/2015	Mitchell	A45F 3/14 224/250
6,038,745	A *	3/2000	Rapp	A45F 3/14 24/165	D737,667	S *	9/2015	Moreau	D8/358
6,049,953	A *	4/2000	McCay	A44B 18/00 24/302	D737,668	S *	9/2015	Moreau	D8/358
6,056,173	A *	5/2000	Gillespie	A45C 13/30 224/194	D738,709	S *	9/2015	Moreau	D8/358
6,216,319	B1 *	4/2001	Elkins	A45F 5/00 224/221	D750,370	S *	3/2016	Nicolas	D3/221
6,301,830	B1 *	10/2001	Whipple	A01G 17/04 47/43	9,271,476	B1 *	3/2016	Flynn	A01K 27/003
6,317,938	B1 *	11/2001	Durette	B62J 7/08 24/298	9,277,744	B1 *	3/2016	Sanders	A01M 31/006
					9,339,086	B2 *	5/2016	Hill	A44B 11/04
					2003/0121944	A1 *	7/2003	Scanlan	A45C 13/30 224/409
					2005/0000470	A1 *	1/2005	Fountoulakis	A01K 1/0272 119/769
					2005/0137063	A1 *	6/2005	Abdo	A63B 21/0004 482/105
					2005/0173477	A1 *	8/2005	Scott	A45F 5/02 224/148.6
					2005/0258203	A1 *	11/2005	Weaver	A45F 5/021 224/162
					2006/0052223	A1 *	3/2006	Terry	A63B 21/0004 482/126

(56)

References Cited

U.S. PATENT DOCUMENTS

2006/0112903	A1 *	6/2006	Zutis	A01K 27/002 119/792	2013/0233902	A1 *	9/2013	Henry	A45F 3/12 224/600
2007/0207905	A1 *	9/2007	Winston	A63B 5/20 482/126	2014/0182084	A1 *	7/2014	Hill	A44B 11/04 24/115 H
2008/0058180	A1 *	3/2008	Clarke	A63B 21/0004 482/126	2014/0217256	A1 *	8/2014	Young	B62J 11/00 248/311.2
2008/0061573	A1 *	3/2008	Lamson	A45F 5/10 294/150	2014/0265390	A1 *	9/2014	Yale	D07B 1/18 294/74
2009/0000083	A1 *	1/2009	Richard	A45F 5/00 24/302	2014/0304952	A1 *	10/2014	Mathews	A45F 5/00 24/302
2009/0031623	A1 *	2/2009	Decker	A01G 17/12 47/43	2015/0020491	A1 *	1/2015	Thelen	A01D 46/26 56/329
2010/0252592	A1 *	10/2010	McKinney	A45F 5/06 224/255	2015/0033510	A1 *	2/2015	Nagi	A45F 3/14 24/302
2011/0052314	A1 *	3/2011	Lindsey	B66C 1/12 403/210	2015/0047159	A1 *	2/2015	Lin	A43C 9/00 24/715.4
2011/0056051	A1 *	3/2011	Wilkinson	B65H 75/366 24/302	2015/0076193	A1 *	3/2015	Bratcher	A45F 5/021 224/250
2011/0225780	A1 *	9/2011	Scott	A63B 23/04 24/302	2015/0144670	A1 *	5/2015	Millington	A45C 13/30 224/250
2012/0023711	A1 *	2/2012	Neumann	B60P 7/0823 24/265 H	2015/0199893	A1 *	7/2015	St. Germain	B66C 15/00 340/539.1
2012/0292362	A1 *	11/2012	Dee	A45F 4/00 224/576	2015/0217674	A1 *	8/2015	Hart	B60P 7/0823 24/302
2013/0014354	A1 *	1/2013	Robbins	B60R 22/024 24/302	2015/0351571	A1 *	12/2015	Johnson	A45F 5/00 224/250
2013/0076053	A1 *	3/2013	Mayer	B65G 7/12 294/74	2016/0095420	A1 *	4/2016	Moreau	A45F 5/021 248/341
					2016/0095421	A1 *	4/2016	Moreau	A45F 5/00 248/341
					2016/0198837	A1 *	7/2016	Reukema	A45F 5/00 248/313

* cited by examiner

Fig. 1

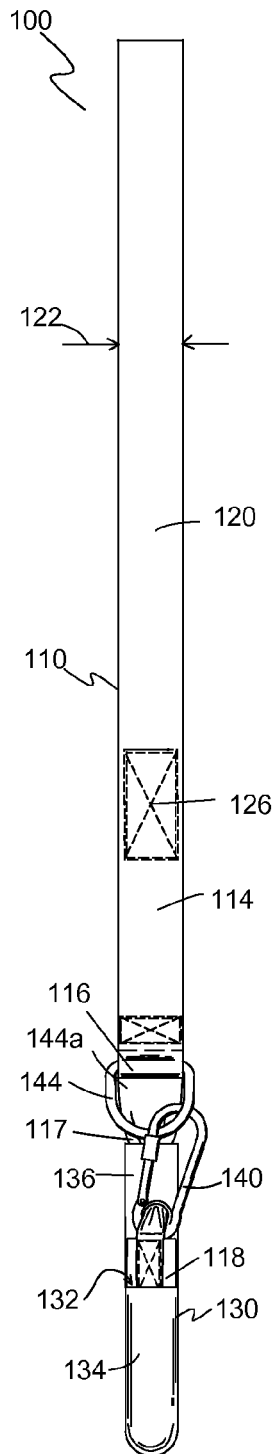


Fig. 2

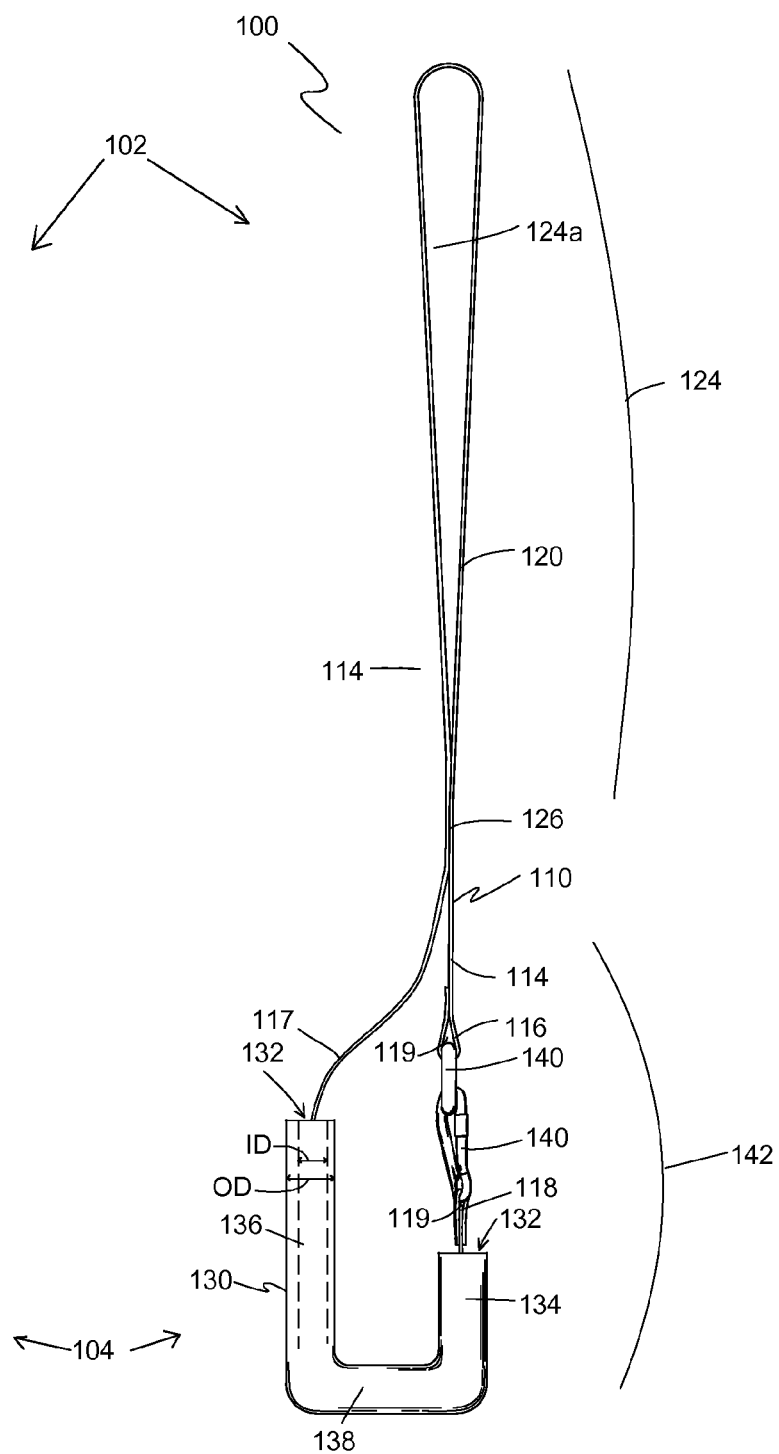


Fig. 3

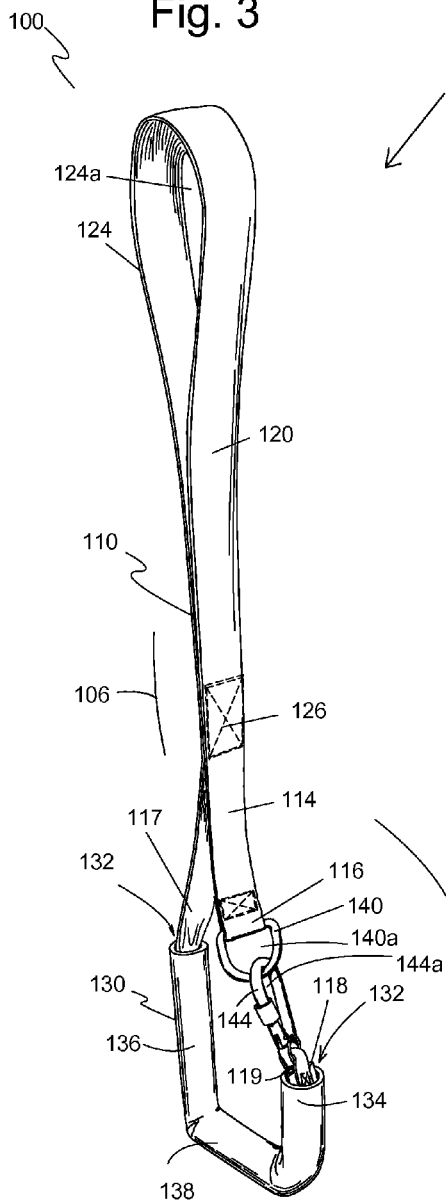
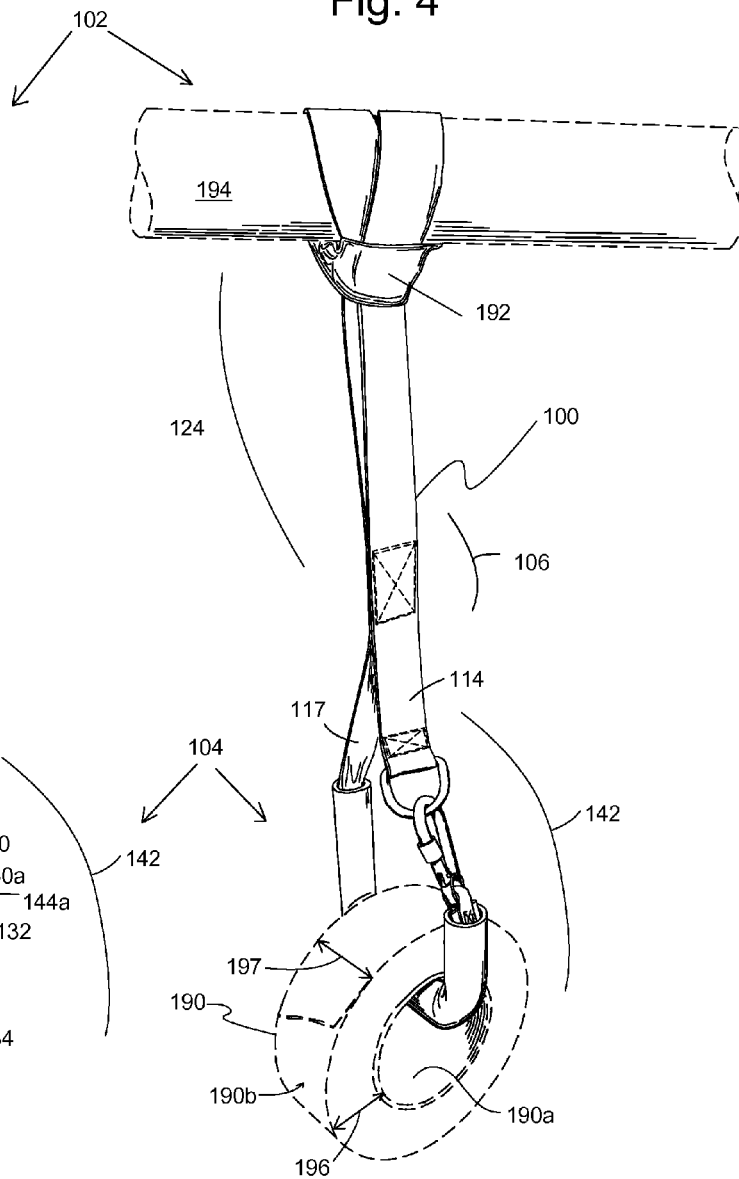


Fig. 4



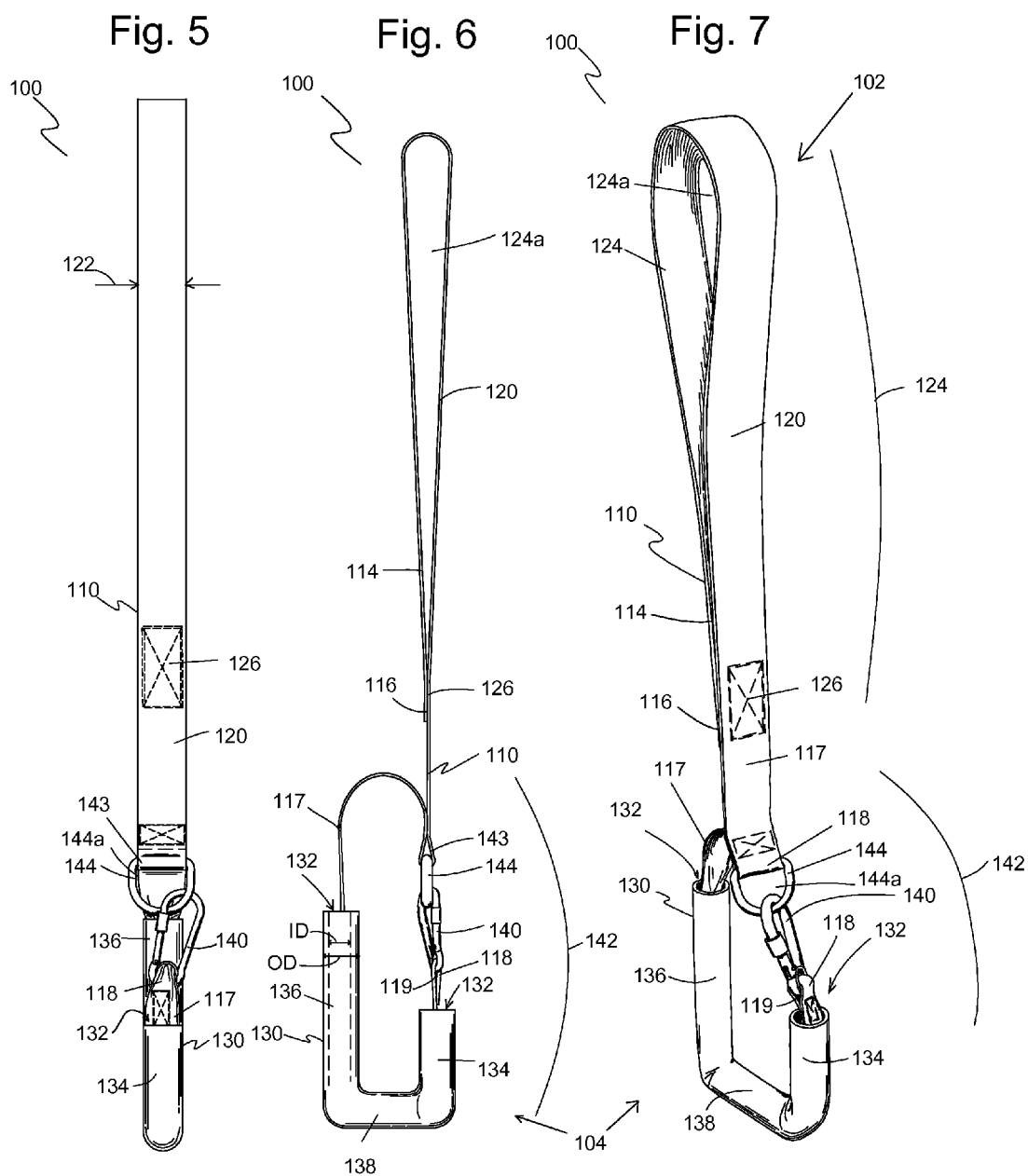


Fig. 8

Fig. 9

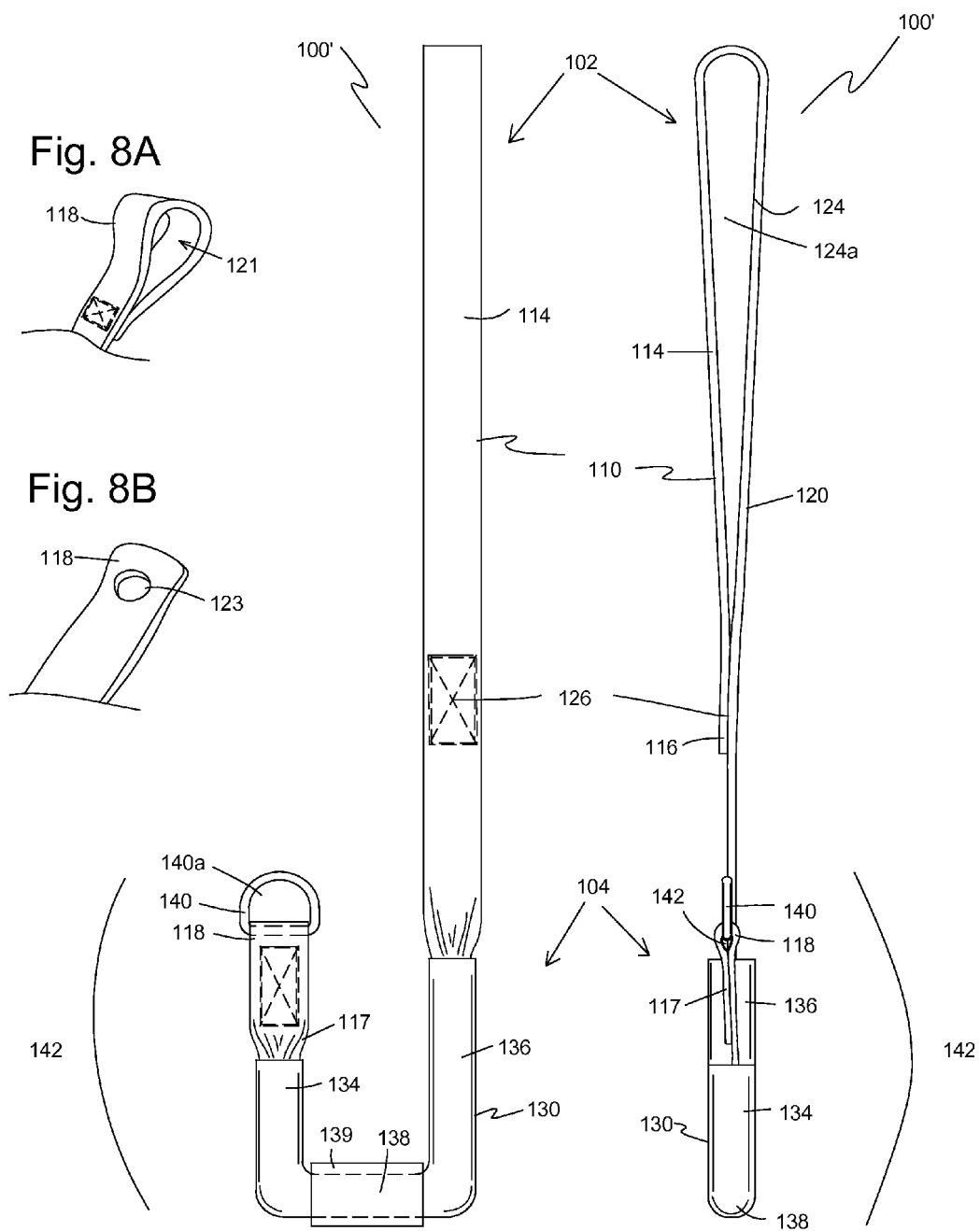


Fig. 10

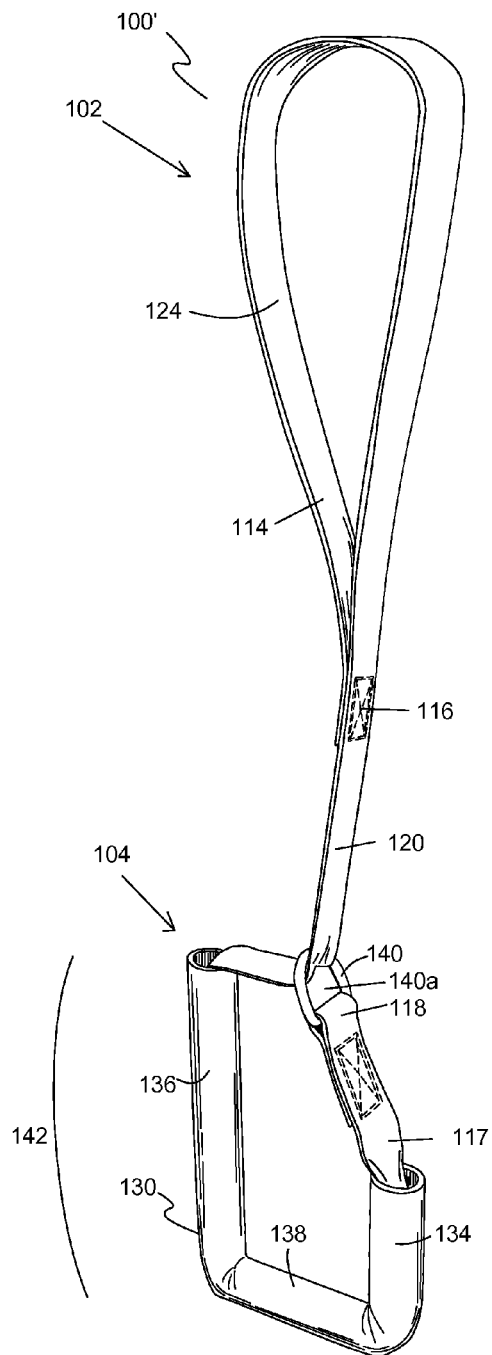
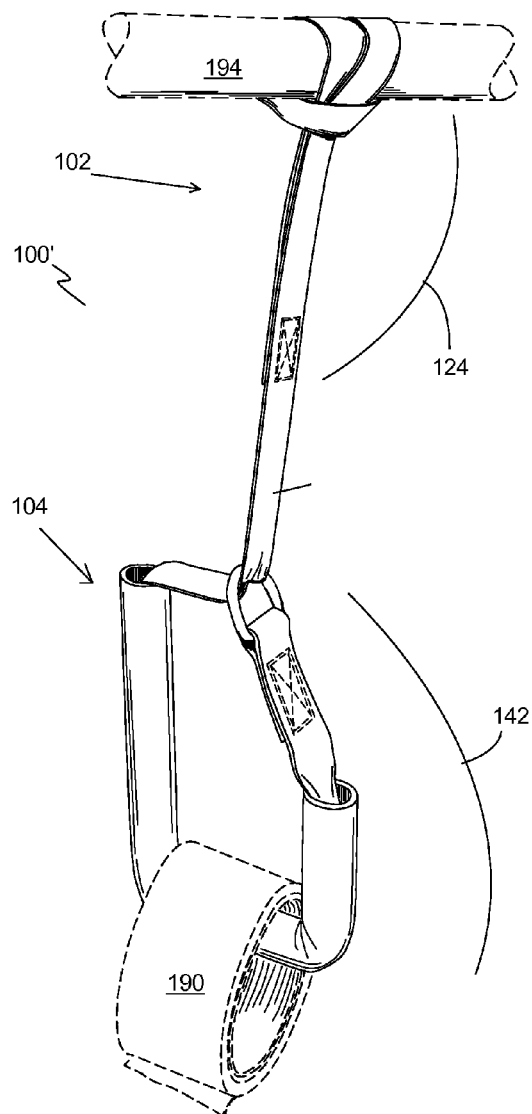


Fig. 11



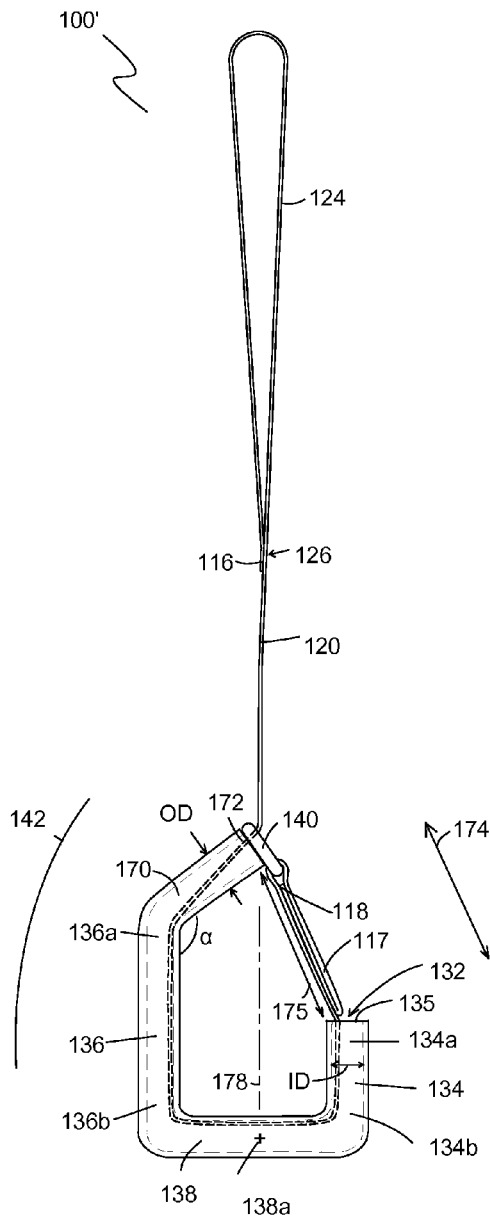


Fig. 14

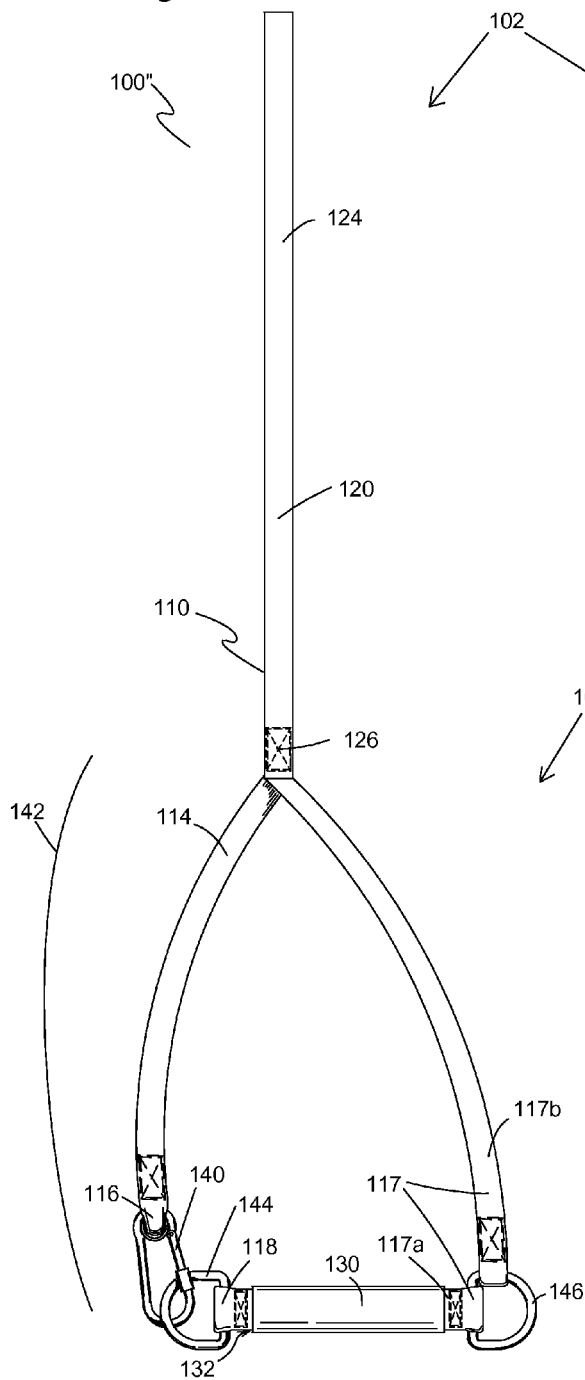


Fig. 15

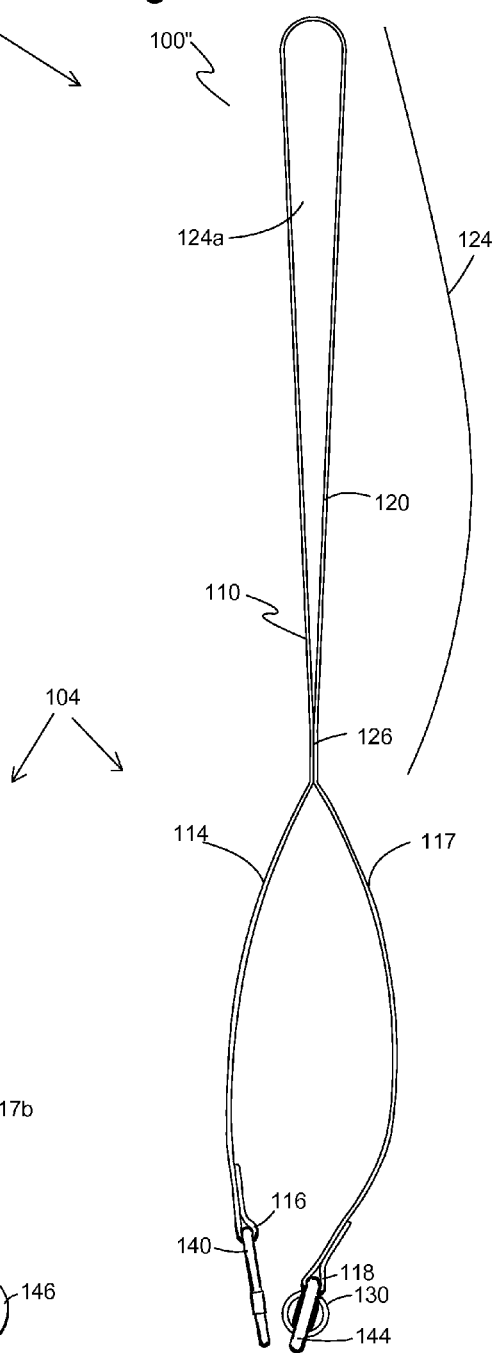


Fig. 16

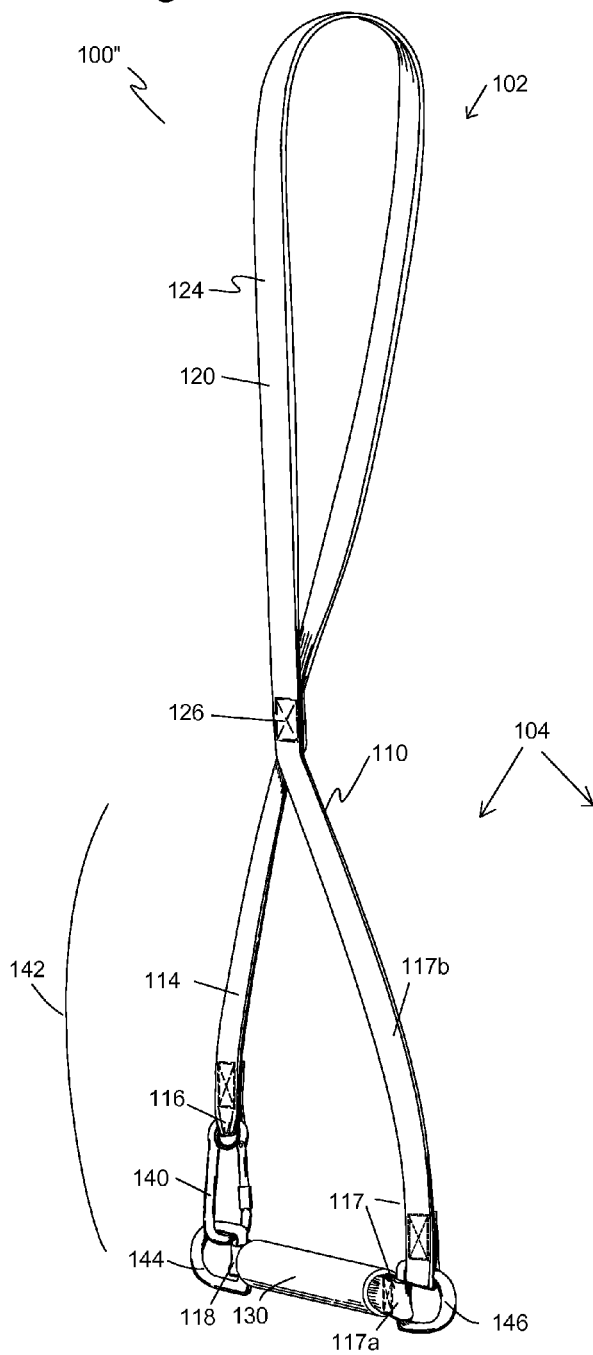


Fig. 17

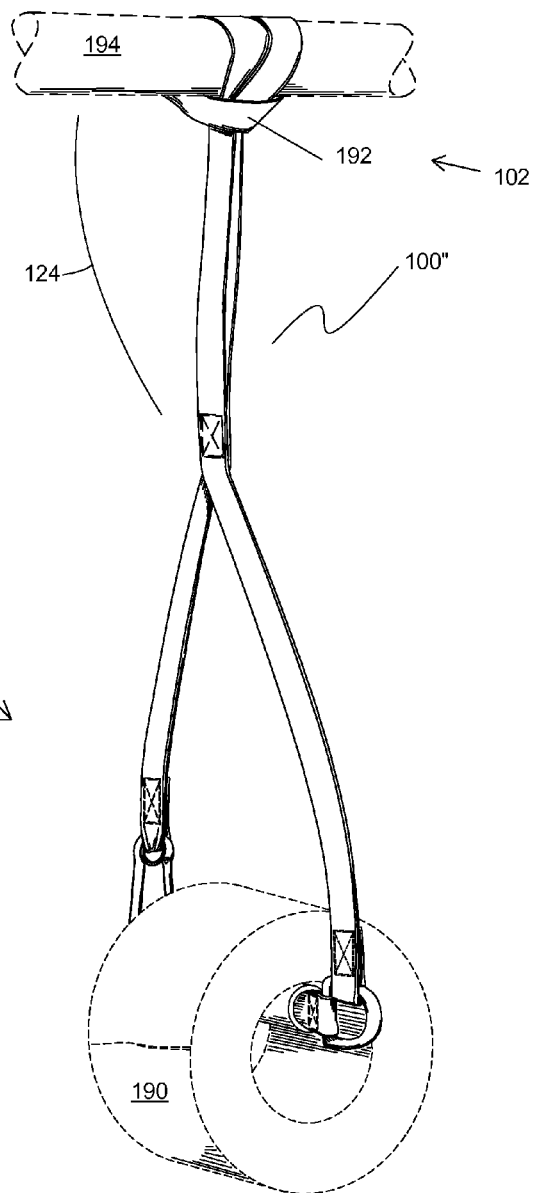
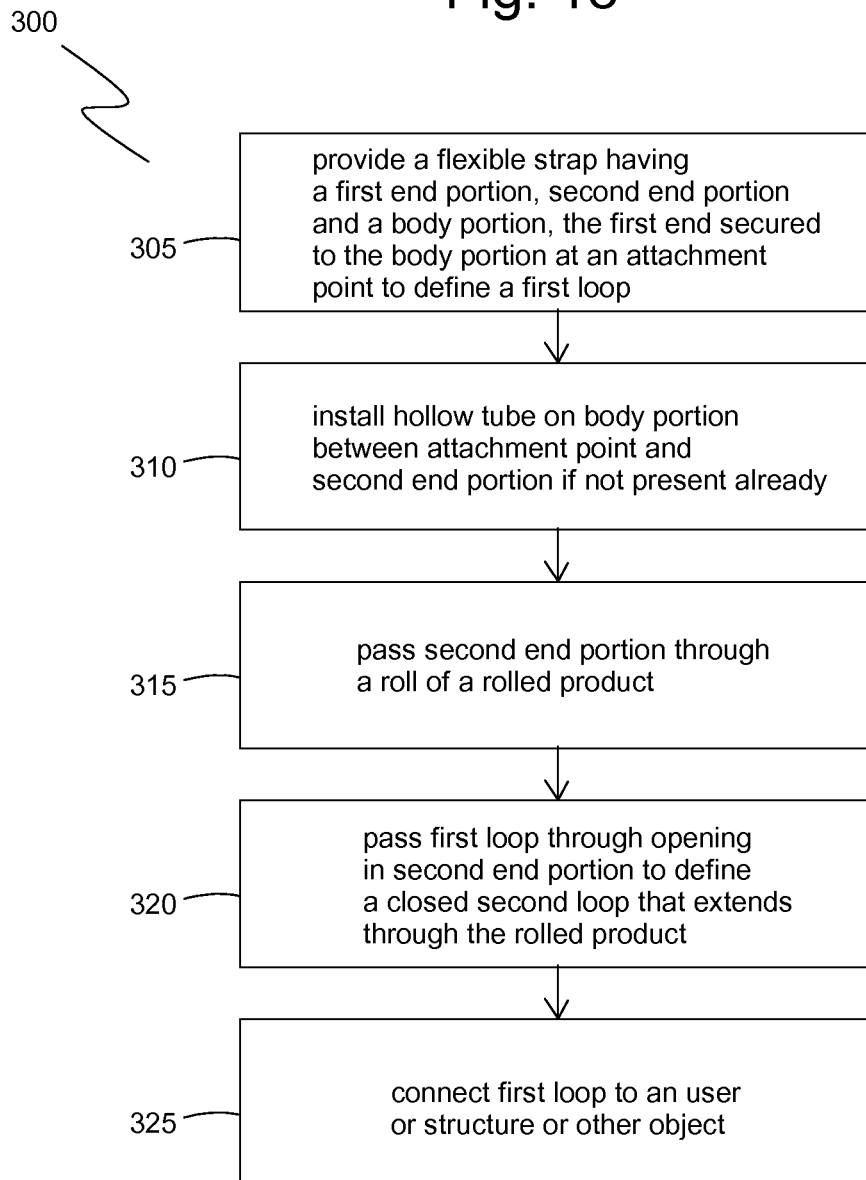


Fig. 18



1

DROP-PREVENTION APPARATUS FOR A ROLLED PRODUCT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to drop-prevention apparatuses and more particularly to a drop-prevention apparatus for products dispensed from a roll.

2. Description of the Prior Art

Lanyards, tethers, hooks, and similar restraints are used to prevent accidental dropping of tools. These restraints are particularly useful for workers at height and in environments where a tool drop can cause substantial damage or harm to plant equipment, to workers, or to objects below a worker who accidentally drops a tool.

One method of tethering a tool includes clipping one end of a tether to an opening in the handle of a tool (e.g., an adjustable wrench) and to clip the other end of the tether to the worker's belt or to a nearby structure. When workers properly tether a tool in this way, accidental drops can be eliminated or greatly reduced.

For materials and supplies used to perform work, however, a lanyard or holding apparatus for tools is useful only in some situations. Attempts have been made to hold rolls of work material, such as duct tape and drywall joint tape. In one approach for a roll of duct tape, a length of soft nylon webbing with a snap hook on each end is used to tether the duct tape. One of the snap hooks is looped through the opening of the tape roll and clipped to the webbing just above the tape roll to form a closed loop that secures the tape roll. The snap hook at the opposite end of the nylon webbing is similarly clipped around a structure. When used in this way, the nylon webbing grips the tape roll by making contact with the sides of the tape roll and with the inner and outer surfaces. The nylon webbing contacts the sides of the tape roll even when the webbing is a loose loop through the tape roll.

Another approach for rolled products is a holder with a metal frame as is used for dispensing drywall joint tape. The holder has a vertical main section with a first end portion and a second end portion each extending horizontally from the main section. One end of a cylinder is attached to the middle of the main section with the cylinder extending horizontally from the main section in the same general direction as the first and second end portions and defining an E shape. A roll of drywall tape is installed on the holder with the cylinder extending through the opening of the tape roll. A holder wire or bar is then connected between the first and second end portions. The holder wire extends in contact with the second end of the cylinder, thereby maintaining the drywall tape roll on the cylinder. A clip on the main section is used to clip the holder to the user's belt or waistband with the vertical main section extending downward along the side of the user's leg. The tape roll freely rotates about the cylinder to dispense the tape.

SUMMARY OF THE INVENTION

Unfortunately, the above-described tethers and drywall tape dispensers have deficiencies that render them inconvenient, unsafe, or otherwise inappropriate for workers at height who use rolled products such as tape. Since the webbing contacts the sides of the tape roll and grips the tape roll, it interferes with the ability of the tape roll to freely rotate about the lanyard, thereby making it difficult to dispense the tape. The difficulty in dispensing tape secured

2

in this way leads to other unsafe conditions due to the worker being distracted by attempting to dispense the tape. Also, for prolonged use, the tape roll rotating in contact with the webbing eventually wears down the webbing, which can lead to the webbing breaking and loss of the tape roll.

A problem with prior art drywall tape dispensers is that the dispenser is not intended to securely hold the tape roll, but instead is a tool of convenience. The construction, assembly, and use of the drywall tape dispensers allows the tape roll to be knocked loose from the holder and for the holder to be knocked loose from the user, thereby resulting in an unsafe condition for workers at height.

Therefore, an alternative approach is needed to tethering rolled goods, such as tape, webbing, and the like. The present invention achieves this and other objectives by providing a drop-prevention lanyard apparatus for rolled goods, including rolled goods that are sized for hand-held use or for lightweight rolled goods capable of being handled by an individual. In one embodiment, a drop-prevention lanyard apparatus for a rolled product includes a flexible strap having a first end portion with a first end, a second end portion with a second end, and a body portion between the first end portion and the second end portion. The first end portion is fixedly attached to the body portion at an attachment point, thereby defining a first loop. A connector is connected to the flexible strap and operable between an open connector position and a closed connector position, where the connector is positioned to selectively connect the second end to the body portion. A tubular member is installed over the second end portion of the flexible strap and positioned between the attachment point and the second end.

In another embodiment, the connector is attached to the second end. In some embodiments, a passageway through the tubular member is sized to prohibit passage of the connector and, thus, removal of the tubular member from the flexible strap.

In some embodiments, the tubular member substantially defines a U shape. In some embodiments, the tubular member has a first arm, a second arm, and a transverse arm between the first arm and the second arm. In some embodiments, the tubular member is unitary. In some embodiments, the second arm is shorter than the first arm. In some embodiments, the tubular member defines a J shape with a flattened bottom.

In another embodiment, a second connector is fixedly and/or permanently attached to the body portion of the flexible strap and positioned between the tubular member and the first loop, where the second connector is constructed to couple the connector to the body portion.

In another embodiment, a drop-prevention lanyard apparatus for a rolled product includes a flexible strap having a first strap end portion with a first strap end, a second strap end portion with a second strap end, and a body portion between the first strap end portion and the second strap end portion, where the first strap end portion is fixedly attached to the body portion at an attachment point, thereby defining a first loop at a first lanyard end portion. The second strap end of the flexible loop has a closed loop. A hollow tubular member is installed over the body portion between the second strap end and the attachment point with the second strap end portion extending from the hollow tubular member. The second strap end portion has an opening sized to permit passage of the first loop therethrough to thereby define an openable second loop. The first loop is sized to permit passage of second strap end portion and the hollow tubular member therethrough. The hollow tubular member has a first arm with a lower first arm portion and an upper

3

first arm portion, where the upper first arm portion has an open end. A second arm is spaced apart from the first arm and has a lower second arm portion and an upper second arm portion. A transverse part extends transversely between and connects the lower first arm portion and the lower second arm portion. An upper transverse portion extends transversely from the upper second arm portion and is aligned with the transverse part. The upper transverse portion has an upper transverse portion open end.

In one embodiment, the upper transverse portion open end defines a line substantially perpendicular to a midpoint of the transverse part. When the first loop is inserted through the opening on the second end portion to close the openable second loop, the second loop is configured to hang vertically below the first loop with a midpoint of the transverse part substantially aligned with a center of gravity of the second loop.

In some embodiments, the first arm, the second arm, and the transverse part substantially define a U-shape or a J-shape with a flattened bottom.

In another embodiment, the second arm is longer than the first arm.

In some embodiments, a closed-loop connector fixedly attached to the second strap end portion defines the opening. The closed-loop connector may be a D-ring, carabiner, or other connector defining a permanently closed loop or a closed loop that is openable by the user.

In another embodiment, the tubular member is a monolithic structure.

In some embodiments, the first loop is unopenable. That is, the first end of the flexible strap is secured permanently to the body portion.

In some embodiments, the tubular member includes a length of wear-resistant tubing installed over the transverse part. In some embodiments, the wear-resistant tubing has a quantity of powdered lubricant on an inside surface, thereby facilitating rotation of the wear-resistant tubing about the transverse part.

In some embodiments, the second strap end portion has a width greater than an inner dimension of the open end of the upper first arm portion, thereby preventing passage of the second strap end portion into the tubular member.

In another embodiment, the closed loop comprises a connector ring fixedly attached to the second strap end.

In another embodiment, the tubular member has a first arm and a second arm, the first arm being spaced apart from the second arm by at least two inches.

In another embodiment, a lanyard for a rolled product includes a flexible strap having a first strap end portion with a first strap end, a second strap end portion with a second strap end, and a body portion extending between the first strap end portion and the second strap end portion, where the body portion is fixedly attached to itself at an attachment point, defining a closed first loop with the first strap end portion and the second strap end portion extending from the attachment point. The first strap end defines a first strap connector opening and the second strap end defines a second strap connector opening. A first connector is attached through one or both of the first strap connector opening and the second strap connector opening, where the first connector is operable between an open connector position and a closed connector position, thereby being capable of selectively connecting the first strap end to the second strap end. A tubular member of a predefined length is installed over the flexible strap between the second strap end and the intersection point.

4

In another embodiment, the first connector is attached through the first strap connector opening and the lanyard assembly includes a second connector connected through the second strap connector opening. In one embodiment, the first connector is a carabiner and the second connector is a closed loop.

In another embodiment, the lanyard includes an intermediate connector installed between a first segment and a second segment of the second end portion, where the tubular member of predefined length is positioned between the second strap end and the intermediate connector.

In another embodiment, the tubular member has a passageway smaller than the second connector, thereby preventing removal of the tubular member by sliding it over the second connector.

In another aspect of the invention, a method of tethering a roll of rolled product includes the steps of providing a flexible strap having a first strap end portion with a first strap end, a second strap end portion with a second strap end, and a body portion extending between the first strap end portion and the second strap end portion, where the first strap end portion is fixedly attached to the body portion at an attachment point, defining a closed first loop; installing a tubular member over the second strap end portion with the second strap end extending out through the tubular member, where the tubular member substantially defines a U shape or a J shape; passing the second strap end through an opening of the rolled product; positioning the rolled product between a first arm and a second arm of the tubular member; and connecting the second strap end to the body portion.

In another embodiment, the method includes connecting the flexible strap to a structure by looping the first loop around the structure and passing the second strap end portion with the rolled product through the first loop, thereby forming a slip knot around the structure.

In another embodiment of the method, the step of connecting the second strap end to the body portion includes coupling a connector to the body portion by operating the connector between an open connector position and a closed connector position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of one embodiment of a lanyard apparatus of the present invention.

FIG. 2 is side elevational view of the lanyard apparatus of FIG. 1.

FIG. 3 is a front perspective view of the lanyard apparatus of FIG. 1.

FIG. 4 is a perspective view of the lanyard apparatus of FIG. 1 shown holding a roll of tape and attached to a structure.

FIG. 5 is a side elevational view of another embodiment of a lanyard apparatus of the present invention.

FIG. 6 is a side elevational view of the embodiment of FIG. 5.

FIG. 7 is a perspective view of the embodiment of FIG. 5.

FIG. 8 is a front elevational view of another embodiment of a lanyard apparatus of the present invention.

FIG. 8A is a perspective illustration of the second end of a flexible strap showing the second end defining a loop.

FIG. 8B is a perspective illustration of the second end of a flexible strap showing the second end with a through opening.

FIG. 9 is a side elevational view of the lanyard apparatus of FIG. 8.

5

FIG. 10 is a front perspective of the lanyard apparatus of FIG. 8.

FIG. 11 is a perspective view of the lanyard apparatus of FIG. 8 shown holding a roll of tape and attached to a structure.

FIG. 12 is a perspective view of another embodiment of a lanyard apparatus with second arm including an upper angled portion.

FIG. 13 is an elevational view of the lanyard apparatus of FIG. 16 showing the upper angled portion of second arm terminating so that the first loop extends upward substantially from the center of gravity of the tubular member.

FIG. 14 is a front elevational view of another embodiment of a lanyard apparatus of the present invention.

FIG. 15 is side elevational view of the lanyard apparatus of FIG. 14 shown with the first end disconnected from the second end.

FIG. 16 is a perspective view of the lanyard apparatus of FIG. 14.

FIG. 17 is a perspective view of the lanyard apparatus of FIG. 14 shown with the first loop attached to a structure and with a roll of tape installed on the tubular member and second loop.

FIG. 18 is a flow chart illustrating exemplary steps in a method of tethering a roll of rolled product.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiments of the present invention are illustrated in FIGS. 1-18. FIGS. 1-3 illustrate front, side, and perspective views, respectively, of one embodiment of a drop-prevention lanyard apparatus 100 for rolled goods, such as tape and the like. Lanyard apparatus 100 in its assembled form has a first lanyard end portion 102, a second lanyard end portion 104 and a lanyard middle portion 106 between first lanyard end portion 102 and second lanyard end portion 104. First lanyard end portion 102 has a first loop 124. Second lanyard end portion 104 is constructed to form an openable second loop 142. Lanyard apparatus 100 is assembled from an elongated flexible strap 110 having a first end portion 114 with a first strap end 116, a second strap end portion 117 with a second strap end 118 and a middle or body portion 120 that extends between and connects first strap end portion 114 to second strap end portion 117. In one embodiment, flexible strap 110 is a continuous length of webbing from first strap end 116 to second strap end 118. In other embodiments, flexible strap 110 has distinct sections or segments that are connected together either permanently or releasably. For example, connectors may join together ends of segments of flexible strap 110.

In one embodiment, flexible strap 110 is a length of webbing made of woven nylon, cotton, polypropylene, polyester or other natural or synthetic materials. In some embodiments, flexible strap 110 has a strap width 122 (or diameter 122) of about 1/2 inch to about one inch. Larger and smaller values of strap width 122 are acceptable depending on the intended use and capacity (weight and/or number of rolls) of lanyard apparatus 100. Flexible strap can also be made of non-woven materials, leather, plastic, cord, rope, chain, cable, and the like.

In one embodiment, flexible strap 110 folds on itself with first strap end portion 114 aligned with and connected to body portion 120 at attachment point 126. First strap end portion 114 and second strap end portion 117 each extend from attachment point 126 for coupling to one another to define openable second loop 142. In one embodiment, first

6

strap end portion 114 is secured to body portion 120 by stitching; however, other attachment methods are acceptable and include a grommet, a rivet, a fastener, a connector, a crimp band, adhesive, or other means suitable to permanently and securely fix first strap end portion 114 to body portion 120.

A hollow tubular member 130 is installed over second strap end portion 117 of flexible strap 110 with flexible strap 110 extending through a passageway 132 defined by tubular member 130. In one embodiment, tubular member 130 is positioned between second strap end 118 and attachment point 126 with second strap end 118 extending from passageway 132. In one embodiment, tubular member 130 defines a U shape having a first arm 134 and a second arm 136 extending from a transverse part 138 in substantially parallel and spaced apart relation.

In some embodiments, tubular member 130 has a telescoping transverse part 138, where a first portion of transverse part 138 connects to first arm 134 and a second portion of transverse part 138 connects to second arm 136. As such, one of the first and second portions of transverse part 138 slidably receives the other of the portions in a telescoping fashion that allows the length of transverse part 138 to be adjusted to different sizes of rolled products 190.

Referring now to FIG. 4, a perspective view shows the embodiment of lanyard apparatus 100 of FIGS. 1-3 installed on a structure 194 and supporting rolled product 190. As shown in FIG. 4, first lanyard end portion 102 with first loop 124 is wrapped or folded around structure 194 and then second lanyard end portion 104, which includes openable second loop 142 and rolled product 190, is passed through first loop 124 to define a slip knot 192 on structure 194. Rolled product 190 (e.g., a roll of tape) has a radial thickness 196 measured radially from radially inside surface 190a to radially outside surface 190b. Rolled product 190 has an axial width 197. Typically, radially inside surface 190a is cylindrical and therefore is able to roll or spin on tubular member 130 to dispense the product.

In another embodiment shown in FIGS. 5-7, which is a variation of lanyard apparatus 100, flexible strap 110 folds on itself with first strap end portion 114 aligned with or crossing body portion 120. First strap end portion 114 is fixedly connected or fixedly attached to body portion 120 at an attachment point 126 to define a closed first loop 124 at first lanyard end 102. In one embodiment, first strap end 116 of flexible strap 110 connects to body portion 120 at attachment point 126 to define first loop 124 at first lanyard end portion 102. In other embodiments, first strap end portion 114 extends beyond attachment point 126 by a predefined length from attachment point 126 to first strap end 116, such as for coupling to second strap end 118 as in the embodiment of FIGS. 1-4 discussed above. First loop 124 is sized to permit second lanyard end portion 104 with a tubular member 130 to pass through opening 124a of first loop 124. Optionally and as shown in FIGS. 4 and 7, first loop 124 is sized to permit second lanyard end portion 104 with tubular member 130, and a roll of rolled product 190 to pass through opening 124a to form a slip knot 192 around a structure 194, a connector, a belt, or other object.

In one embodiment, first strap end portion 114 of flexible strap 110 is attached by stitching 128 to body portion 120; however, other attachment methods are acceptable and include a grommet, a rivet, a fastener, a connector, a crimp, adhesive, or other means suitable to permanently fix first strap end portion 114 or first strap end 116 to body portion 120 of flexible strap 110.

At second lanyard end portion **104**, a tubular member **130** is installed over flexible strap **110** over second strap end portion **117**. Flexible strap **110** extends through a passageway **132** defined by tubular member **130**. In one embodiment, tubular member **130** is positioned between second strap end **118** and attachment point **126** with second strap end **118** extending from passageway **132**. In one embodiment, tubular member **130** defines a U shape having a first arm **134** and a second arm **136** extending from a transverse arm **138** in substantially parallel and spaced apart relation.

In one embodiment, tubular member **130** is a length of plastic, rubber, or metal tubing that is bent or assembled into a U shape. Tubular member **130** is rigid enough to maintain its shape when supporting a hand-held roll product, such as adhesive tape or the like. In one embodiment, tubular member **130** is made of rigid plastic, such as cross-linked polyethylene ("PEX") tubing having an outer diameter of about one inch and an inner diameter of about $\frac{3}{4}$ inch.

In one embodiment, second arm **136** is longer than first arm **134**, where the U shape resembles more of a J shape. In one embodiment, first arm **134** and second arm **136** each have a length at least as great as a radial thickness of rolled product **190** as measured from an radially inside surface **190a** to a radially outside surface **190b** (shown in FIG. 5). First arm **134** is spaced apart from second arm **136** by a distance that is at least as great as axial width **197** of rolled product **190** (shown in FIG. 4), which is commonly about two to about four inches. Other larger or smaller spacing is acceptable depending on the type and number of rolled product(s) supported by lanyard apparatus **100**.

When tubular member **130** is sized and shaped in this way, rolled product(s) **190** can freely rotate or spin about transverse part **138** to dispense the product (e.g., tape) without interference or resistance from flexible strap **110** (see FIG. 4). When made of PEX, for example, first and second arms **134**, **136** are smooth enough to minimally grip a roll or rolled product **190**. First and second arms **134**, **136** act as guides for rolled product **190** as it rotates about transverse part **138** and also protect flexible strap **110** from abrasive wear.

In other embodiments, tubular member **130** includes one or more straight or curved tubing segments that together define a U shape. For example, first arm **134**, transverse part **138**, and second arm **136** are separate segments that are positioned in proximity with each other along flexible strap **110** to define a U shape. An embodiment having a single tubing segment is discussed in more detail below with reference to FIGS. 14-17.

In another embodiment, tubular member **130** is a continuous length of hollow tubing that substantially forms a U shape. Tubular member **130** may be a single length of tubing that is bent to a U shape or it may be a series of straight sections and elbows that are assembled together. In one embodiment where tubular member **130** is a continuous length of tubing bent to define a U shape, first arm **134** and second arm **136** optionally splay outward as they extend from transverse part **138**. In other words, first and second arms **134**, **136** diverge away from each other along a longitudinal axis of transverse part **138**. Accordingly, tubular member **130** places second strap end portion **117** in tension and takes up any slack between connector **140** and body portion **120** or second connector **144**, which are discussed below. In such a splayed embodiment, a user must squeeze first and second arms **134**, **136** toward each other to provide sufficient slack in second strap end portion **117** for connector **140** to be disconnected from body portion **120** or second connector **144**.

A connector **140** is fixedly attached to first strap end **116** and/or second strap end **118** of flexible strap **110**. In one embodiment, first strap end **116** and/or second strap end **118** folds on itself and is fixed to itself to define a strap connector opening **119** to receive connector **140**. With connector **140** extending through strap connector opening **119** on first strap end **116** and on second strap end **118**, for example, connector **140** is arranged to couple to first strap end **116** to second strap end **118**. In one embodiment, connector **140** is operable between an open connector position and a closed connector position so as to be selectively connected to body portion **120** or a second connector **144** on body portion **120** other location on flexible strap **110**. Examples of such a connector **140** include carabiners, snap hooks, a chain link with a closure, lobster clasps, and the like. For example, connector **140** is a carabiner that is clipped around flexible strap **110**, through an opening in flexible strap **110**, or through a loop defined by flexible strap **110** to define an openable second loop **142** at second lanyard end portion **104** that includes second strap end portion **117**, tubular member **130**, and connector **140**.

Optionally, flexible strap **110** includes a second connector **144**, such as a D-ring, O-ring, or other connector with a permanently or releasably closed geometry to which connector **140** attaches. In one embodiment, second connector **144** is attached to first strap end **116** as shown in FIGS. 1-4. In some embodiments, second connector **144** is operable between an open connector position and a closed connector position.

In some embodiment as shown in FIGS. 5-7, second connector **144** is attached to flexible strap **110** at body portion **120** between first lanyard end **102** and second lanyard end **104**. In such an embodiment, second connector **144** may be installed with flexible strap **110** extending through second connector opening **144a**, where second connector is not fixedly attached to (i.e., allowed to slide along) body portion **120**. In other embodiments, second connector **144** is fixedly attached to body portion **120**, such as by passing body portion **120** through second connector opening **144a**, looping it around second connector **144a** to fold on itself, and attaching body portion **120** to itself to define a second connector opening **143**. With body portion **120** defining second connector opening **143**, it links or couples body portion **120** to second connector **144**. Body portion may be attached to itself using methods as discussed above for attachment point **126**.

In other embodiments, connector **140** is a closed loop, such as a D-ring, an O-ring, or other connector or structure with a permanently closed geometry. In such an embodiment, connector **140** is selectively connectable to body portion **120** by having second connector **144** on body portion **120**, where second connector **144** is operable between an open connector position and a closed connector position. In one embodiment, both of connector **140** and second connector **144** are operable between an open connector position and a closed connector position. In other embodiments, connector **140** is eliminated and replaced by a closed loop defined by second strap end **118** or an opening through second strap end portion **117** or second strap end **118**. Second connector **144** may be attached through such an opening or loop.

Referring now to FIGS. 8-10, front, side, and perspective views, respectively, illustrate another embodiment of lanyard apparatus **100'**. FIG. 11 shows the embodiment of lanyard apparatus **100'** shown in FIGS. 8-10 installed on structure **194** and including rolled product **190**.

Similar to embodiments discussed above, lanyard apparatus 100' has a first lanyard end 102 and a second lanyard end 104, where first lanyard end 102 defines first loop 124 and second lanyard end 104 defines openable second loop 142. Second loop 142 is shown open in FIGS. 8-9 and is shown closed in FIGS. 10-11. Lanyard apparatus 100' is assembled from flexible strap 110 having first strap end portion 114 with first strap end 116, second strap end portion 117 with second strap end 118, and body portion 120 extending between first strap end portion 114 and second strap end portion 117. At lanyard first end 102, flexible strap 110 folds on itself such that first strap end portion 114 with first strap end 116 is fixedly attached or connected to body portion 120 at attachment point 126, thereby defining first loop 124. Second strap end portion 117 extends from attachment point 126 into second arm 136 of tubular member 130, through passageway 132, and out of first arm 134. Connector 140 is fixedly attached to second strap end 118.

In one embodiment, connector 140 is a ring or loop, such as a D-ring or O-ring. Connector 140 is sized to permit first loop 142 to pass through connector opening 140a and define second loop 142. In other embodiments, connector 140 is not included as part of lanyard apparatus 100' and instead, second strap end 118 defines a through opening or loop (shown in FIGS. 8A, 8B) through which first loop 124 is passed to define second loop 142. In one embodiment, connector 140 is larger than the inner diameter of tubular member 130 so that tubular member 130 cannot be removed by sliding over second strap end 118.

In yet another embodiment, lanyard apparatus 100' has no connectors. Instead, first strap end 116 is connected to second strap end 118 to define a single loop. Flexible strap 110 is passed through tubular member 130, where one portion of the single loop becomes first loop 124 extending from second arm 136 and where the portion of the single loop extending from first arm 134 becomes second end portion 117 that defines second loop 142. First loop 124 is passed through second loop 142.

As with the embodiment discussed above and shown in FIGS. 1-4, tubular member 130 of lanyard apparatus 100' substantially defines a U shape with first arm 134, second arm 136, and transverse part 138. Optionally, as shown in FIG. 8, a length of wear-resistant tubing 139 is installed over transverse part 138. Wear-resistant tubing 139 may be, for example, tubing made of rubber, plastic, PVC, reinforced PVC, or other materials. In some embodiments, wear-resistant tubing 139 includes a dry powdered lubricant on an inside surface to reduce friction and facilitate spinning of wear-resistant tubing 139 about transverse part 138. Wear-resistant tubing 139 is preferably sufficiently flexible and resilient to allow it to be removed and replaced over transverse part 138. For example, when wear-resistant tubing 139 becomes worn, the user may slide it off of tubular member 130, where stretching wear-resistant tubing 139 may be necessary at corners between first and second arms 134, 136 and transverse part 138.

Referring now to FIGS. 12-13, a perspective and an elevational view, respectively, show another embodiment of lanyard apparatus 100' as a variation of the embodiment shown in FIGS. 8-11. As in the embodiment of FIGS. 8-11, first strap end 116 of flexible strap 110 is secured to body portion 120 at attachment point 126 to define first loop 124. Body portion 120 extends through tubular member 130 and exits from first arm 134, where second strap end 118 defines a loop or includes a connector 140 sized to permit passage of first loop to define and close second loop 142. For example, second strap end 118 forms a closed loop through

which first loop 124 can be inserted. As another example, second strap end 118 loops through a connector 140 such as a D-ring, folds on itself, and is secured to itself to retain connector 140.

Whether second strap end 118 defines a loop or is secured to connector 140 with an opening, second end portion 117 extends from first arm 132 of tubular member 130 with second strap end 118 being folded on itself and secured together at one or more additional attachment points 125 to maintain second end portion 117 at its full strap width 122, where full strap width 122 is greater than the inner diameter ID of passageway 132. As such, second end portion 117 resists or is unable to pass into passageway 132 and a predefined length 174 of second end portion 117 is maintained outside of tubular member 130. When assembled in use, first loop 124 extends through connector 140 and is pulled tight to eliminate slack. By doing so, connector 140 (or loop at second strap end 118) slides along body portion 120 to abut open end 172 of upper transverse portion 170 and maintain connector 140 spaced from open end 135 of first arm 134 at the predefined length 174. Preferably, the connector opening of connector 140 is smaller than the outer diameter OD of tubular member so as to prevent tubular member from passing through connector 140.

As with some embodiments discussed above, tubular member 130 includes a U-shape portion defined by first arm 134, second arm 136, and transverse part 138, where transverse part extends between and connects lower first arm portion 134a and lower second arm portion 136b. Tubular member 130 in this embodiment also includes an upper transverse portion 170 that extends from an upper second arm portion 136a at an angle α and in a direction generally aligned over transverse part 138 below it. In one embodiment, angle α between upper transverse portion 170 and second arm 136 is an angle between about 90° and about 150°, preferably 120° to 150°. In one embodiment, angle α is about 135°. Other values of angle α are acceptable and depend on the desired space or gap 175 between open end 135 on upper first arm portion 134a and open end 172 on upper transverse portion 170. The gap 175 is typically sized so that a roll of rolled product 190 can be installed over first arm 134 without interference from upper transverse portion 170.

In its assembled, ready-to-use configuration, second end 118 is passed through the opening of rolled product 190 and rolled product 190 is positioned to spin on transverse part 138 of tubular member. First loop 124 is fed through connector 140 or other opening to close second loop 142 and secure rolled product 190 to lanyard apparatus 100'. Rolled product 190 may then be suspended by first loop 124, such as shown in FIG. 11 or other methods as desired.

In some embodiments, upper transverse portion 170 has a length so that open end 172 is aligned over a midpoint 138a of transverse part 138. Therefore, in its assembled in-use configuration, the center of gravity 178 of lanyard apparatus 100, body portion 120, and midpoint 138a are all substantially aligned. Thus, when tubular member 130 with rolled product 190 (shown in FIG. 11) hang from first loop 124, transverse part 138 naturally maintains a substantially horizontal position for more convenient dispensing of the rolled product 190 (shown in FIG. 11.)

Referring now to FIGS. 14-17, front, side, and perspective views, respectively, illustrate another embodiment of lanyard apparatus 100" with first lanyard end 102 defining first loop 124 and second lanyard end 104 defining openable second loop 142. Second loop 142 is shown closed in FIGS. 14, 16, and 17 and is shown open in FIG. 15. Lanyard apparatus 100" is assembled from flexible strap 110 having

11

first strap end portion 114 with first strap end 116, second strap end portion 117 with second strap end 118, and body portion 120. Body portion 120 folds on itself is fixedly attached to or connected to itself at attachment point 126, thereby defining first loop 124 and first lanyard end 102. First strap end portion 114 and second strap end portion 117 extend from attachment point 126 to first strap end 116 and second strap end 118, respectively, and which form a portion of second lanyard end 104.

First strap end 116 includes connector 140, which is operable between an open connector position and a closed connector position. Second strap end 118 has a second connector 144 or defines a through opening 123 (shown in FIG. 8B) or a loop or strap connector opening 121 (shown in FIG. 8A) for selective connection to or coupling with connector 140. Tubular member 130 is installed on second strap end portion 117 with second strap end 118 extending through passageway 132. Connector 140 is connected to second connector 144 to close second loop 142. In some embodiments, connector 140 is a D-ring or other closed loop and second connector 144 is operable between an open connector position and a closed connector position. Optionally, connector 140 and second connector 144 each are operable between an open connector position and a closed connector position.

In one embodiment, second strap end portion 117 of lanyard apparatus 100" includes one or more intermediate connectors 146 (e.g., a loop or D-ring) positioned between second strap end 118 and attachment point 126 and defining a first segment 117a and a second segment 117b of second strap end portion 117. Additional intermediate connectors 146 define additional segments of second strap end portion 117. Tubular member 130 is installed over first segment 117a. In one embodiment, tubular member 130 is a length of straight tubing having an inner diameter that is smaller than second connector 144 and intermediate connector 146. As such, tubular member 130 is not removed by disconnecting second connector 146 from connector 140 and sliding tubular member 130 over second connector 144.

FIG. 17 shows a perspective view of lanyard apparatus 100" attached to structure 194 by slip knot 192 formed by first loop 124 at first lanyard end 102. Rolled product 190 is installed on tubular member 130 with second loop 142 at second lanyard end 104 coupled to tubular member 130 and rolled product 190.

Referring now to FIG. 18, a flowchart illustrates exemplary steps of a method 300 of tethering a rolled product. In step 305, the user provides a flexible strap 110 having a first strap end portion 114 with a first strap end 116, a second strap end portion 117 with a second strap end 118, and a body portion 120 between the first strap end portion 114 and the second end portion 118. In one embodiment, flexible strap 110 is selected with first end 114 fixedly attached or connected to body portion 120 at attachment 126 to define a first loop 124.

In step 310, tubular member 130 is installed on flexible strap 110 with second strap end portion 117 extending through passageway 132 of tubular member 130. In one embodiment, tubular member 130 is selected to define a U shape or a J shape. In other embodiments, tubular member includes upper transverse portion 170 with open end 172 aligned with midpoint 138a of transverse part 138 below it. Tubular member 130 may be a continuous length of tubing formed into the desired shape or it may be a plurality of segments connected together or installed in proximity to one another. Optionally, a length of wear-resistant tubing 139 is installed over transverse part 138 of tubular member 130.

12

In step 315, a roll of rolled product 190 is installed on flexible strap 110 by passing second strap end portion 117 through the opening of the roll. In one embodiment, step 315 includes positioning rolled product 190 between first and second arms 134, 136 of tubular member 130 so as to rotate about transverse part 138.

In step 320, first loop is passed through opening (e.g., connector 140) of second end portion 117 to define and close second loop 142 linked to rolled product 190. In one embodiment, second strap end 118 is selected to include connector 140 operable between an open connector position and a closed connector position.

In step 325, first loop 124 is connected to the user or to a structure 194. In one embodiment, first loop 124 is wrapped around structure 190 and then second loop 142 with rolled product 190 is passed through first loop 124 to form slip knot 192 on the structure 194.

Although the preferred embodiments of the present invention have been described herein, the above description is merely illustrative. Further modification of the invention herein disclosed will occur to those skilled in the respective arts and all such modifications are deemed to be within the scope of the invention as defined by the appended claims.

We claim:

1. A lanyard apparatus for a rolled product, the lanyard assembly comprising:

- a flexible strap having a first strap end portion with a first strap end, a second strap end portion with a second strap end, and a body portion extending between the first strap end portion and the second strap end portion, wherein the first strap end is secured to the body portion at an attachment point, thereby defining a first loop; and
- a hollow tubular member installed over the body portion between the second strap end and the attachment point, wherein the second strap end portion extends from the hollow tubular member and has an opening sized to permit passage of the first loop therethrough to thereby define an openable second loop;

wherein the first loop is sized to permit passage of the second strap end portion and the hollow tubular member therethrough; and

wherein the hollow tubular member comprises:

- a first arm with a lower first arm portion and an upper first arm portion, the upper first arm portion having an open end;
- a second arm spaced apart from the first arm and having a lower second arm portion and an upper second arm portion;
- a transverse part extending transversely between and connecting the lower first arm portion and the lower second arm portion; and
- an upper transverse portion extending transversely from the upper second arm portion and aligned with the transverse part, the upper transverse portion having an upper transverse portion open end.

2. The lanyard apparatus of claim 1, wherein the upper transverse portion open end defines an imaginary line of a center of gravity substantially perpendicular to a midpoint of the transverse part.

3. The lanyard apparatus of claim 1, wherein when the first loop is inserted through the opening on the second end portion to close the openable second loop, the second loop is configured to hang vertically below the first loop with a midpoint of the transverse part substantially aligned with a center of gravity of the second loop.

4. The lanyard apparatus of claim 1, wherein the first arm, the second arm, and the transverse part substantially define a U-shape or a J-shape with a flattened bottom.

5. The lanyard apparatus of claim 1, wherein the second arm is longer than the first arm. 5

6. The lanyard apparatus of claim 1, wherein a closed-loop connector fixedly attached to the second strap end portion defines the opening.

7. The lanyard apparatus of claim 1 wherein the tubular member is a monolithic structure. 10

8. The lanyard apparatus of claim 1, wherein the first loop is unopenable.

9. The lanyard apparatus of claim 1, further comprising a length of wear-resistant tubing installed over the transverse part. 15

10. The lanyard apparatus of claim 9, further comprising a quantity of powdered lubricant on an inside surface of the wear-resistant tubing, thereby facilitating rotation of the wear-resistant tubing about the transverse part.

11. The lanyard apparatus of claim 1, wherein the second strap end portion has a width greater than an inner dimension of the open end of the upper first arm portion, thereby preventing passage of the second strap end portion into the tubular member. 20

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25